

REMARKS

Upon entry of the present amendment, claims 1-10 are pending in the application, of which claims 1, 4, 7, and 9-10 are independent.

The applicant thanks the Examiner for her helpful remarks during a telephone discussion with the applicant's representative on May 4, 2005. The rejection of claim 10 under 35 USC 112, and the allowance of claim 6 were discussed. The main reference, Yamaguchi was discussed with respect to the rejected claims. The Examiner noted that she did not have the reference on hand, but that she had allowed certain claims for their recitation of a correction factor. No agreement was reached.

After careful consideration of the objections and rejections set forth in the Office Action, applicant respectfully submits that as amended, all pending claims patentably distinguish over the art of record, and requests allowance of all pending claims, as discussed further below.

Claim Rejections – 35 USC 112

In item 2 of the above-identified Office Action, the Examiner rejected Claims 1-3 and 9-10 as being indefinite.

As regards claim 1, line 6, "the front wheels" is amended to recite "a front wheel" so as to overcome the rejection under 35 USC 112. At line 17 and 19 of claim 1, the applicant has recited that the rotational speed sensor is cited is one of the front or rear wheel rotational speed sensor, the same rotational speed sensor is used in both the first and second calculating units.

As regards claim 2, lines 3 and 6 are amended to be consistent with the amendments to claim 1, lines 17 and 19.

As regards claim 9, line 5, the claim has been amended to recite "for a vehicle having a

plurality of wheels” to provide antecedent basis for “the wheels”.

As regards claim 10, line 6, the applicant respectfully disagrees with this rejection since a “four-wheeled vehicle” is claimed, thereby providing antecedent basis for “the wheels.” If the Examiner still finds a lack of antecedent basis, further clarification thereof is requested.

The amendments herein to claims 1, 2, and 9 place these claims in a condition which avoids rejection under 35 USC 112, second paragraph.

Claim rejections – 35 USC 103

In item 4 of the Office Action, the Examiner rejected Claims 1, 3, and 9 under 35 USC 103(a) as unpatentable over Yamaguchi (US 6,466,855) in view of Yamamoto et al. (US 6,526,367). The Examiner stated that, in her view, Yamaguchi discloses a vehicle speed apparatus having wheel rotational sensors 52 FL, 52FR, 52RL, 52RR, a vehicle speed calculator 50, a drive mode sensor 18 for sensing whether the vehicle is in 2WD or 4WD mode by the position of a switch 26, and a first vehicle speed calculating unit and a second vehicle speed calculating unit which calculate the vehicle speed based on output from the wheel rotational speed sensor and a respective predetermined condition.

The Examiner further states that, in her view, the only difference between Yamaguchi and the claimed invention is a speed display mechanism, and that Yamamoto et al disclose a wheel speed detecting apparatus including a display for displaying the vehicle speed calculated by the vehicle speed calculator. It is the Examiner’s position that it would have been obvious to readily recognize the advantages and desirability of employing a display as suggested by Yamamoto et al to the apparatus of Yamaguchi to provide a visual output to the operator.

The applicant respectfully disagrees with the rejections of claims 1, 3, and 9 since the claimed subjected matter is not obvious in view of Yamaguchi, or in view of Yamaguchi as modified by Yamamoto et al. Upon review of these references, the applicant notes that Yamaguchi discloses a vehicle speed estimating apparatus for estimating vehicle speed for use in by a controller that performs control of vehicle behavior and traction. Yamaguchi discloses estimating vehicle speed based on wheel speeds and driving mode (2WD or 4WD). In particular, Yamaguchi discloses a single electronic control unit 50 which receives a signal Vf1, Vfr, Vrl, Vrr which "is indicative of a wheel speed" (col 4, line 59) from the wheel speed sensor 52 of each wheel. ECU 50 sets one of the signals Vf1, Vfr, Vrl, Vrr as the vehicle speed Vb based upon the determined driving mode. If the vehicle is in 2WD mode, the ECU 50 sets the vehicle speed Vb to be the higher one of the wheel speeds Vf1, Vfr of the front (ie, non-driven) left and right wheels, respectively. If the wheel is in 4WD mode, or if the drive mode is indeterminate, the apparatus sets vehicle speed Vb to be the lowest detected wheel speed as indicated by wheel speed sensor output of any wheel of the vehicle.

With respect to the rejection of claims 1 and 9, the applicant respectfully submits that according to the teaching of Yamaguchi, regardless of driving mode, the selected wheel rotation speed is set to be the same as the chosen sensor output by a single entity, the electronic control unit 50 (col. 5, lines 27-29, lines 46-60, and Fig. 2).

The applicant respectfully submits that Yamaguchi does not disclose two separate calculating units, as recited in claims 1 and 9, but instead discloses a single electronic control unit 50. In the rejection, the Examiner refers to a "first calculating unit" S30 for calculating vehicle speed in 2WD mode, and a "second calculating unit" S40 for calculating vehicle speed in 4WD mode. However, the applicant strongly disagrees that Yamaguchi discloses plural

calculating units, and submits that the “units” S30, S40 cited by the Examiner are not physical structures which perform calculations, but are instead method steps describing functions of the single control unit 50. The applicant submits that Yamauchi discloses control unit 50 as providing a plurality of functions, but that, as shown in Yamaguchi's Fig. 1, all the functions are provided by the same structure.

This is in contrast to the applicant's invention, wherein a first calculation unit is provided for calculating wheel speeds in the 2WD mode, and a second calculation unit is provided for calculating wheel speeds obtained in the 4WD mode.

As further regards claim 9, the applicant respectfully submits that the control unit 50 disclosed by Yamaguchi does not suggest or disclose a first calculating unit which performs a calculation which is different from the calculation performed by the second vehicle speed calculating unit.

In response to the Examiner's statement (page 4, lines 5+) that the reference suggests separate components or circuitrics for performing different specific computations (col. 11 line 53- col. 12, line 8) makes obvious the plural calculating units, the applicant respectfully disagrees. Yamaguchi does disclose the alternative of replacing the single level control system of ECU 50 with a hierarchical control system wherein a central processor has overall, system level control and also includes separate sections under the control of the central processor, wherein the separate sections perform various different specific computations. This has application to the plural separate functions cited by Yamaguchi as performed by the ECU 50, such as calculations of yaw rate, slip rates, slip angle, etc.. However, the applicant submits that determination of vehicle speed by the controller is a single function, regardless of the drive mode. That is, no matter whether the mode is 2WD or 4WD, the controller selects a wheel speed and sets it to be

the vehicle speed. Thus, the determination of wheel speed as disclosed by Yamaguchi does not require separate calculating sections for each drive mode. Since no such separate calculation is required by Yamaguchi, and since providing multiple units to perform the same task would be redundant, the applicant respectfully suggests that an interpretation of Yamaguchi to include such separate wheel speed calculating units comes entirely from the Examiner's hindsight of the applicant's invention.

Thus, the applicant respectfully disagrees with and traverses the rejection of claims 1 and 9, since Yamaguchi does not disclose a first vehicle speed calculating unit and a second vehicle speed calculating unit as recited by the applicant in claims 1 and 9, but instead discloses a single electronic control unit 50 which sets one of the signals V_{fl} , V_{fr} , V_{rl} , V_{rr} as the vehicle speed V_b based upon the determined driving mode. The applicant respectfully asserts that there is no suggestion in Yamaguchi, or in Yamaguchi as modified by Yamamoto, to provide multiple speed calculating units, or to provide multiple speed calculating units which each performs a different calculation. Thus the applicant respectfully submits that claims 1 and 9 are patentable over Yamaguchi as modified by Yamamoto.

Although the applicant disagrees with the rejection of claims 1 and 9 as discussed above, in order to promote the prosecution of the application, the applicant has amended claims 1 and 9 herein to recite that the first vehicle speed calculating unit and the second vehicle speed calculating unit each correct the calculated vehicle speed. Such a correction or adjustment of the calculated wheel speed is not suggested or disclosed by Yamaguchi, or by Yamaguchi as modified by Yamamoto et al..

As regards claims 3 and 6, this claim incorporates the limitations of claim 1 therein, and is distinguishable over the references of record as discussed above in connection with claim 1.

Other Matters

The Examiner has indicated that claims 4-8 are allowable over the prior art of record. The applicant's presumption that claim 6, which depends from rejected claim 1, was mistakenly indicated to be allowable was confirmed by the Examiner by telephone on May 4, 2005.

Claim 2 has been rewritten to overcome the rejections under 35 USC 112, second paragraph and to include all the limitations of the base claim (claim 1). Claim 2 as amended is fully supported by the specification. No new matter has been added by this amendment.

Claim 10 has not been rewritten to avoid rejection under 35 USC 112, second paragraph since antecedent basis is provided by the phrase "four-wheeled" in the preamble. Thus claim 10 is in condition for allowance.

Conclusion

Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination. Applicant therefore requests reconsideration and withdrawal of the rejection of record, and allowance of the pending claims.

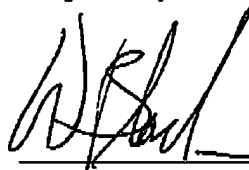
If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

The Commissioner is hereby authorized to charge the \$200.00 fee for one additional independent claim in excess of three, and is also authorized to charge any deficiency or credit any excess, to Deposit Account 50-0744 in the name of Carrier, Blackman & Associates, P.C.

A duplicate copy of this sheet is enclosed.

Favorable consideration is respectfully requested.

Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted, via facsimile, to the United States Patent and Trademark Office on June 14, 2005.

